

PATENT APPLICATION  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of  
Takehito Mizuno, et al.

Docket No: Q92885

Appln. No.: 10/566,581

Group Art Unit:1797

Confirmation No.:5116

Examiner: Krishan S. MENON

Filed: January 31, 2006

For: METHOD AND APPARATUS FOR MANUFACTURING ZEOLITE MEMBRANE,  
AND ZEOLITE TUBULAR SEPARATION MEMBRANE PROVIDED BY THE  
METHOD

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Kiminori Sato, Ph. D., hereby declare and state that I am a citizen of Japan. I received a Bachelor of Science degree from the Geographic Department, Faculty of Science, Tohoku University in 1990; a Master's degree from the Earth Science Course, Post graduate course of Science, Tohoku University, in 1992; and a Doctorate from the Material Science Course, Doctoral Course of Natural Science, Okayama University, in 1996.

From January 1997 to November 1997, I was a researcher at Alberta University. After this, from December 1997 to March 1998, I was a researcher at the National Institute for Research in Inorganic Materials (Japan). I then worked as a researcher for the High Energy Accelerator Research Organization (Japan) from April 1998 to March 2000. I worked from April 2001 to June 2008 as a researcher at the

Bussan Nanotech Research Institute, Inc.

I have been employed by Mitsubishi Chemical Corporation since July 2008, where I hold a position as a researcher, and have conducted research and development on nano materials and nano bioscience. In particular, I have focused on techniques in the production of nano porous fine separation membranes in the Bussan Nanotech Research Institute, Inc., and Mitsubishi Chemical Corporation.

The following experiment was performed by me or under my direct supervision.

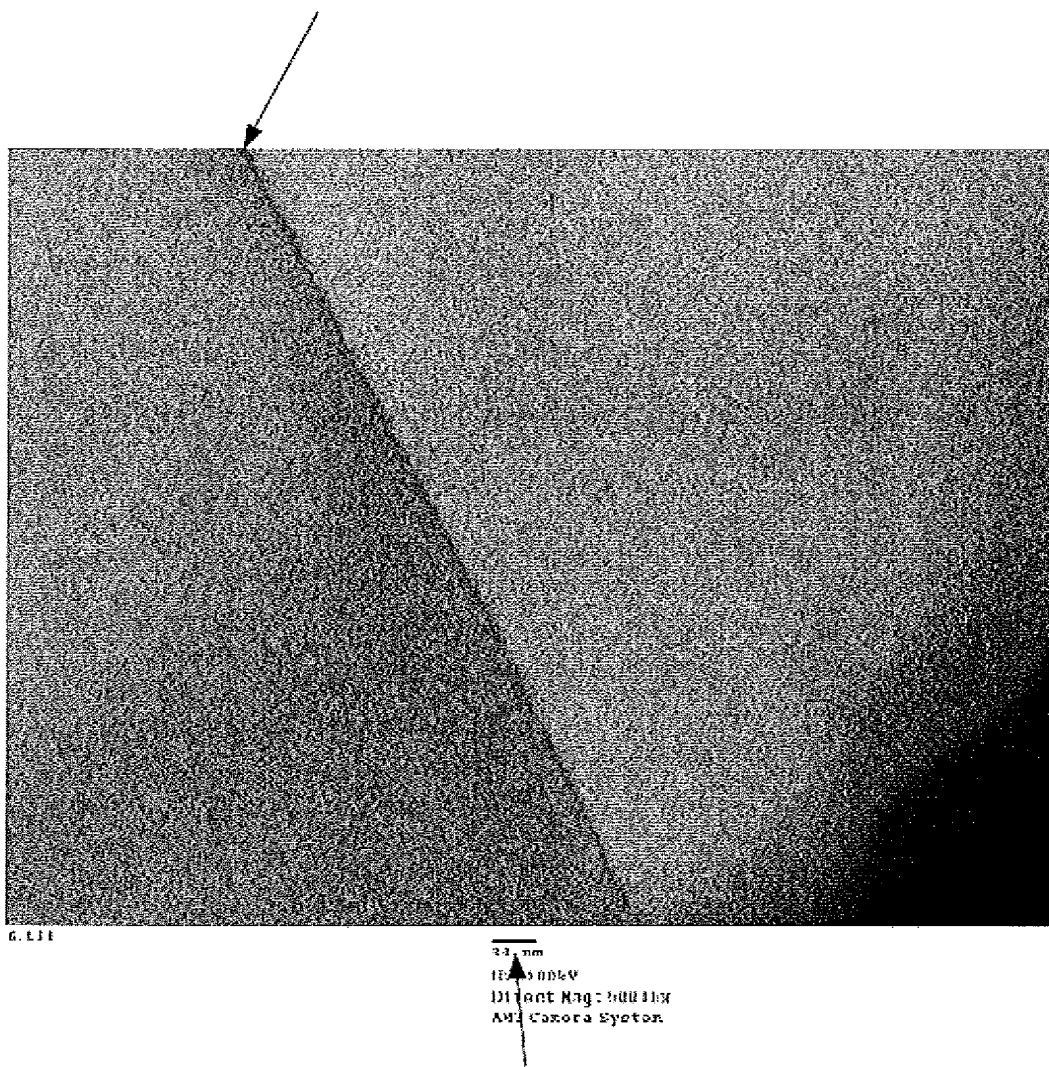
Supplementary Experiment of Example 1 in Matsukata

According to the description of Example 1 of U.S. Patent Application Publication No. 2001/0012505 (Matsukata), a MOR zeolite membrane was formed on the outer peripheral surface of a porous alumina supporting tube. The zeolite membrane thus formed was observed by TEM using a field emission type transmission electron microscope (HF-2000, manufactured by HITACH) under an operation condition of 200kV. The obtained result is shown in the following Fig. 1. In comparison, the data of the A-type zeolite disclosed in Example 1 of the specification of U.S. Application No. 10/566, 581 is shown in Fig. 2.

As shown in Fig. 1, it is clear that in the MOR zeolite membrane disclosed in Matsukata, a grain boundary layer of 5-50 nm in thickness does not exist at the space between single crystals.

FIG. 1

There is no boundary layer of 5 nm or more.



Scale of 20 nm

FIG. 2

There is a boundary layer of 5 nm or more.



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I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: May 11, 2010

Kiminori Sato  
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